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imagery analysis report

The Xia, China's First SSBN (S)



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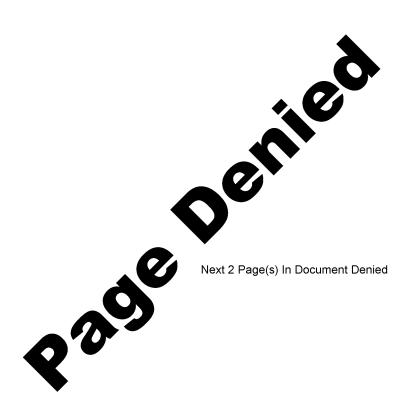
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	THE XIA, CHINA'S	FIRST SSBN (S)		
in the launch dock a in late April 1981 (i launch preparations	(ia—China's first nuclear-powered, at Huludao Naval Base Shipyard and Figure 1). The submarine has been were identified in late 1980.	Port Facility under construction	since being launched since the mid-1970s; initial	25 X 1
The submarine is The submarine featurerical rudder; two shaft. The placement exception of the Sorrelied heavily on te The developmental	long; it has a waterline long; at horizontal stern diving planes; and of the missile bay aft of the sail for the top top the sail for the sail for the sail for the desentation of the desentation of the sail for the s	ength of sissile bay covered by a five-bladed scre bllows the design of eign and construction 1-class, nuclear-powery the United States is	and a beam of a raised turtleback; a single, we mounted on a centerline every modern SSBN with the of the Xia, the Chinese have red attack submarine (SSN). In converting an established	25X1
shape and size sugge sail. Undoubtedly, it	BN. Table 1 provides a dimensional est that the Xia is basically a Han wit nternal modifications were made to e-launched ballistic missile (SLBM) s	h a n accommodate the e	nissile bay inserted aft of the	25 X 1
	Table 1. Comparison of Xia and Han I		eters)	
	This table in its entirety is classified SECRET			
	Dimensions	Han SSN Xia SS	SBN _	25 X 1
	Length overall Waterline length			23/1
	Maximum beam			
	Bow to front of sail			
	Sail, height			
	Sail, width			
	Sail, length at top			
	Sail, deck-level length Sailplanes			
	Stern diving planes			
	Turtleback, total length			
	Turtleback, back of sail to taper			
	Turtleback, height from deck			
	Turtleback, width			
	Vertical rudder height			
	Vertical rudder length Screw diameter			
,				
could possibly depart SSN's, the commence	ning that no unusual problems are of the for sea trials by late 1982. Howeve ement of sea trials could be delayed	er, if the Xia has fitting I.	g-out problems like the Han	
be related to torped personnel access hat of the turtleback (Fig than does that of th	external access openings in the Xia vas observed in the outer hull imme o/weapons loading or may possibly tches/escape trunks have been ider gure 1). The sail has a significantly late Han. While the Han's sail cap ha Figure 1) has a bridge, two rectang	ediately aft of the bow serve as an access to atified—one forward rger number of penel s a bridge and four a	or (Figure 1). This access may a bow sonar. Two probable of the sail and the other aft trations through the sail cap antenna/mast openings, the	25X1 25X1
the missi long. The aft slope of where a very-low-free	rtleback (Figure 1) begins just aft of le bay, and tapers down to merge v of the turtleback was removed shor equency (VLF) antenna will probably ne housing could be installed at a la	with the outer hull. T tly after the launch, r v be located. No hous	he turtleback is evealing a large, open area sing for this type of antenna	25 X 1
of two sailplanes, a gured and are simila meter maximum blac	single vertical rudder, and two ho r in size to those of the Han. A five de width, is mounted on a centerlin	rizontal diving plane: -bladed screw, e shaft.	s, are conventionally confi- in diameter with a	25X1
fitting-out. On meter beneath the d	ts rollout and launch in the launch a single missile tube outer leck level (Figure 2). The outlines of sile tubes were confirmed on imag	door over the numbe 11 additional missile :	r six port missile tube was 1	25X1 25X1
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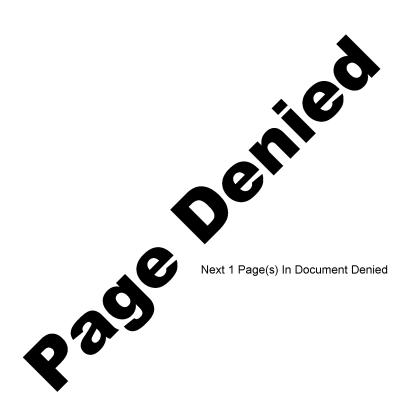


doors, the missile deck cowling, and a trapezoidal plate from the aft slope were removed and placed in a	}
temporary storage area adjacent to the dock (Figure 4). The missile tubes are arranged in two rows of six along the centerline of the submarine. The tubes' center-to-center distance athwartships is	25X1
and the center-to-center distance fore and aft isAt the time of the launch, cylindrical covers	25 X 1
were atop all the missile tubes (Figure 4). On the tops of two cylindrical covers were removed,	25X1
revealing an inner missile tube diameter of Figure 3). The remaining cylindrical covers were removed as work progressed on the submarine; by all covers had been removed. The primary	25X1 25X1
reasons for the covers were probably environmental and worker protection. In addition, a canvas-covered framework had been erected by to protect the missile bay.	25X1
7. (S/D) The dimensions and configuration of the missile tubes on the Xia are consistent with the missile tubes installed in the Golf ballistic missile submarine (SSB). The Chinese have installed a missile launch system on the Golf that uses a launch tube that fits inside the missile tube. The launch tube on the Golf has an internal diameter of the launch tube can	25 X 1
be removed from the missile tube, whereas the missile tube is an integral part of the submarine. The	
internal diameter of the missile tube on the Golf is Mensuration of the number four port missile tube on the Xia on revealed an inner diameter of This measurement, when	25X1 25X1
missile tube on the Xia on revealed an inner diameter of fhis measurement, when compared to the previous diameter for the missile tubes, indicates that the Xia carries a launch tube compatible with those on the Golf.	25X1
8. (S/D) Missile tube muzzle caps and locking rings, which were not installed on the submarine prior to launch, had begun to arrive at dockside by (Figure 4). The muzzle caps and locking rings are designed to fit atop the missile tube and to seal the tube. Four muzzle caps and locking rings were	25X1
seen on that date, and on a maximum of 10 muzzle caps and locking rings were present. The muzzle caps are in diameter, and the locking rings have a inner and outer diameter, respectively. The muzzle caps have a twin-arm hinge on one side that allows the cap to swing	25X1 25X1
open, away from the tube. The muzzle caps and locking rings were installed shortly after the installation	
of the canvas cover over the missile bay. All of the caps were in place on (Figure 5).	25X1
However, six muzzle caps had been removed by and the remaining six caps had been removed by The 12 missile tube outer doors were placed over the open tubes. The initial	25X1 25X1
placement of the muzzle caps on the missile tubes was to ensure a proper fit. The caps were then removed to allow additional work on the interiors of the missile tubes.	23/1
9. (S/D) Access to the engineering and reactor space was identified just after the missile bay deck plating was removed. The pressure hull plug and the reactor access panel were removed and placed in the open storage area on the quay, and a square enclosure was placed around the access opening (Figure 6). The access opening is at least long and wide. No equipment or structures were visible in the opening. The distance from the midpoint of the opening to the stern is The reactor access opening on the Han is also from the stern.	25X1 25X1 25X1
10. (S/D) Preliminary fitting-out in the engineering and reactor spaces probably began shortly after	
launch and continued through the rest of the year. The only interruption in fitting-out was caused by the launch of two small barges between Four small, curved objects	25 X 1
(Figure 6), which had been removed from the engineering/reactor area, were observed in the temporary storage area adjacent to the dock. The objects have an inner and outer chord of	25X1
respectively, and are These objects probably function as internal braces or stiffeners in the submarine. Four similar objects were observed during the fitting-out of Han	25X1
SSN unit 2. These objects were not reinstalled in the second Han until after the reactor was fueled. 11. (S/D) The nuclear submarine fitting-out barge (Figure 7) had been moved alongside the Xia by	
The barge was previously used in fitting-out both Han SSNs. The fitting-out barge remained in the dock through the remainder of the year, and numerous pieces of equipment were observed on board, including two large, cylindrical, possible dockside waste containers (Figure 7). The possible waste containers were also used during the fitting-out of Han unit 2. In addition, the support tanks used during the fitting-out cycle arrived at dockside (Figure 5). The four light-toned tanks that were used for liquid storage support during reactor startups for both Hans were not installed aboard the fitting-out barge. These four tanks were installed aboard a smaller barge (Figure 7), which will serve as a permanent platform for the tanks. The removal of the tanks from the fitting-out barge frees additional space for equipment in the barge. Two of the tanks probably provide emergency coolant for the reactor, and the remaining two tanks probably provide backup emergency coolant storage capacity.	25X1
Imagery Analyst's Comments	;
12. (S/D) The launch of the Xia SSBN was the culmination of a long-awaited construction program that started in the early 1970s. Very few surprises were noted in the design or weapons system. The design progression from the Han SSN to the Xia SSBN appears to have been done in a very logical manner. Like both Han SSNs, the Xia will require extensive work in the reactor and engineering spaces. The reactor access panels of all three submarines were removed shortly after launching, and a considerable amount of time was spent on work in the reactor and engineering spaces; therefore, it is believed that neither the Han SSNs nor the Xia was launched with a fueled reactor. The increased attention that is given to this area on the submarine is probably a direct result of the problems that plagued the first Han. The Chinese have experienced problems with the integrity of the welds in the reactor area and were forced to replace the	

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two steam generators on that submarine. This problem and others encountered as a result of poor metallurgical technology are the probable reasons for the extensive amount of work and time spent in fitting-out. As the Chinese become more experienced in the construction of nuclear-powered submarines, it is anticipated that the problems that plagued the early units will be solved, resulting in a decrease in fitting-out time.

the muzzle caps, upper portions of the turtleback, and missile bay deck. Additional work on internal machinery and hardware will probably continue through the early part of 1982 and could possibly be completed by mid-to-late 1982. Upon completion of the internal fitting-out, the reactor will be fueled, and the Xia will be prepared for its initial sea trials. The sea trials and early shakedown cruises will probably take place at Xiaopingdao Submarine Base the site of the Han sea trials. The base will be the loading facility for the SLBMs that are expected to be stored at the nearby Xiaopingdao SLBM Support Facility
14. (S/D) The missile for the Xia is the WU-1 SLBM, currently undergoing land-based flight tests at Wuzhai Missile Test Complex Three test flights of the WU-1 SLBM have been attempted from Wuzhai, two of them in 1981 and the most recent on test was considered to be the first successful test flight of the WU-1 SLBM and the first launch from the A2 silolike position. The silolike launch position simulates the underwater launch of an SLBM from an actual launch tube. In addition, further surface launch tests of the WU-1 missile are expected in order to prove that the missile can achieve the required range and accuracy. Simultaneously with this activity at Wuzhai, indications of possible SLBM at-sea testing involving the Golf SSB were observed at Xiaopingdao. A continuation of this activity could result in the first at-sea launch of a WU-1 SLBM in 1982.
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